

### From the INTERNATIONAL BUREAU

### **PCT**

### **NOTIFICATION OF ELECTION**

(PCT Rule 61.2)

To:

United States Patent and Trademark Office (Box PCT) Crystal Plaza 2 Washington, DC 20231 ÉTATS-UNIS D'AMÉRIQUE

Date of mailing (day/month/year)
11 January 1999 (11.01.99)

International application No.
PCT/NL98/00259

International filing date (day/month/year)
11 May 1998 (11.05.98)

Applicant
QUAX, Paulus, Hubertus, Andreas et al

	11 December 1999 /11 12 99\	
	11 December 1998 (11.12.98)	
in a notice effecting later elec	tion filed with the International Bureau on:	
The election X was		
was not		
	onths from the priority date or, where Rule 32 applie	s, within the time limit under
Rule 32.2(b).		
	·	

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland

Authorized officer

Nicola Wolff

Telephone No.: (41-22) 338.83.38

Facsimile No.: (41-22) 740.14.35

	From the INTERNATIONAL BUREAU			
PCT	То:			
NOTIFICATION OF THE RECORDING OF A CHANGE  (PCT Rule 92bis.1 and Administrative Instructions, Section 422)  Date of mailing (day/month/year) 28 September 1998 (28.09.98)	SMULDERS, Th., A., H., J. Vereenigde Octrooibureaux Nieuwe Parklaan 97 NL-2587 BN The Hague PAYS-BAS			
Applicant's or agent's file reference				
PCT 0694	IMPORTANT NOTIFICATION			
International application No. PCT/NL98/00259	International filing date (day/month/year) 11 May 1998 (11.05.98)			
The following indications appeared on record concerning:      The applicant the inventor	the agent the common representative			
Name and Address	State of Nationality State of Residence  NL NL			
NEDERLANDSE ORGANISATIE VOOR TOEPAST-NATUURWETENSCHAPPELIJK ONDERZOEK TNO	Telephone No.			
	Facsimile No.			
	Teleprinter No.			
2. The International Bureau hereby notifies the applicant that the	ne following change has been recorded concerning:			
the person X the name the add				
Name and Address	State of Nationality State of Residence NL NL			
NEDERLANDSE ORGANISATIE VOOR TOEGEPAST-NATUURWETENSCHAPPELIJK	Telephone No.			
ONDERZOEK TNO	Facility Na			
	Facsimile No.			
	Teleprinter No.			
3. Further observations, if necessary:				
4. A copy of this notification has been sent to:				
X the receiving Office	X the designated Offices concerned			
X the International Searching Authority	the elected Offices concerned			
the International Preliminary Examining Authority	other:			
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Yolaine CUSSAC			
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38			





### **INTERNATIONAL SEARCH REPORT**

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference		Transmittal of International Search Report
PCT 0694	ACTION (Form PC1/ISA/2	20) as well as, where applicable, item 5 below.
International application No.	International filing date (day/month/year)	(Earliest) Priority Date (day/month/year)
PCT/NL 98/00259	11/05/1998	12/05/1997
Applicant		
NEDERI ANDRE ODGANIZATIE M		
NEDERLANDSE ORGANISATIE VO	JUN TUEGEPAST- ET AL	
This International Search Report has been according to Article 18. A copy is being tra	n prepared by this International Searching Auth Insmitted to the International Bureau.	ority and is transmitted to the applicant
	_	
This International Search Report consists  X It is also accompanied by	of a total of sheets.  a copy of each prior art document cited in this	raport
it is also assumpting by	a copy of cach phot air accument cited in this	
1. Basis of the report		
	international search was carried out on the bas ess otherwise indicated under this item.	is of the international application in the
the international search w Authority (Rule 23.1(b)).	as carried out on the basis of a translation of th	ne international application furnished to this
b. With regard to any <b>nucleotide an</b>	d/or amino acid sequence disclosed in the in	ternational application, the international search
was carried out on the basis of the contained in the internation	e sequence listing : anal application in written form.	
	rnational application in computer readable form	1.
furnished subsequently to	this Authority in written form.	
furnished subsequently to X the statement that the subsequent	this Authority in computer readble form.	
the statement that the sub- international application a	sequently furnished written sequence listing do s filed has been furnished.	oes not go beyond the disclosure in the
X the statement that the info	ormation recorded in computer readable form is	identical to the written sequence listing has been
2. Certain claims were fou	nd unsearchable (See Box I).	
3. X Unity of invention is lac	king (see Box II).	
4 1451		
4. With regard to the title,  The text is approved as su	heritad by the applicant	
1 <del> </del>	hed by this Authority to read as follows:	
the text has been establis	The by this Authority to read as follows.	
5. With regard to the abstract,	haittad by the applicant	
	brillited by the applicant. hed, according to Rule 38.2(b), by this Authorit adate of mailing of this international search rep	
6. The figure of the <b>drawings</b> to be publ	ished with the abstract is Figure No.	<u>-</u>
as suggested by the appli	cant.	None of the figures.
because the applicant fail	•	•
because this figure better	characterizes the invention.	

Form PCT/ISA/210 (first sheet) (July 1998)





Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)
This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:
1. Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
2. Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).
Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)
This International Searching Authority found multiple inventions in this international application, as follows:
see additional sheet
As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:  1-15 18 19
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
Remark on Protest  The additional search fees were accompanied by the applicant's protest.  X  No protest accompanied the payment of additional search fees.

### FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-5, 13-15 completely and 18,19 partially

A vector useful for transfection of mammalian cells comprising a nucleic acid insertion encoding an expressible hybrid polypeptide which comprises a domain with a binding function and a domain with an effector function, said binding function comprising a receptor binding domain and said vector is selected from the group of viral and non-viral vectors especially an adenovirus or a retrovirus vector and its use.

2. Claims: 6-12 completely and 18, 19 partially

A vector useful for transfection of mammalian cells comprising a nucleic acid insertion encoding an expressible hybrid polypeptide which comprises a domain with a binding function and a domain with an effector function, said effector function comprising an enzymatically active domain or a protease inhibitor activity and its use

3. Claims: 16-17 completely and 18, 19 partially

A vector useful for transfection of mammalian cells comprising a nucleic acid insertion encoding an expressible hybrid polypeptide which comprises a domain with a binding function and a domain with an effector function, wherein said nucleic acid insertion is under the control of a cell-or tissue-specific promoter and its use

A. CLASSIFICATION OF SUBJECT MATTER IPC 6 C12N9/72 C12N15/62

C07K14/81

//C07K19/00

According to International Patent Classification (IPC) or to both national classification and IPC

### B. FIELDS SEARCHED

 $\frac{\text{Minimum documentation searched (classification system followed by classification symbols)}}{IPC-6-C12N-C07K}$ 

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

X	WO 96 34009 A (RUTGERS THE STATE UNIVERSITY OF NEW JERSEY) 31 October 1996 see page 10, line 10 - page 20, line 2	1,13-15, 18,19
x		
	WO 91 12328 A (FOWLKES DANA M ET AL) 22 August 1991 * the whole document, esp. page 1-2 and page 28, line 20 - page 39, line 26 *	1
X	WO 96 23814 A (CELL GENESYS INC) 8 August 1996 see page 9 - page 10	1,18
X	EP 0 383 599 A (MERCK & CO INC) 22 August 1990 see the whole document	1-3,6,19

Y Further documents are listed in the continuation of box C.	X Patent family members are listed in annex.		
Special categories of cited documents:  "A" document defining the general state of the art which is not considered to be of particular relevance  "E" earlier document but published on or after the international filling date  "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)  "O" document referring to an oral disclosure, use, exhibition or other means  "P" document published prior to the international filling date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.  "&" document member of the same patent family		
Date of the actual completion of the international search  19 February 1999	Date of mailing of the international search report  0 9. 03. 99		
Name and mailing address of the ISA  European Patent Office, P.B. 5818 Patentlaan 2  NL - 2280 HV Rijswijk  Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  Fax: (+31-70) 340-3016	Authorized officer  De Kok, A		

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Category °	ation) DOCUMENTS CONSIDERED TO BE RELEVANT  Citation of document, with indication, where appropriate, of the relevant passages	Reloyant to plain his
Calegoly	ondation, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 95 28955 A (GLIEMANN JOERGEN ET AL) 2 November 1995 see the whole document	1,3
A	WO 95 11987 A (INCYTE PHARMA INC) 4 May 1995 see page 25, line 4 - page 27, line 13 see page 85, line 10 - page 87, line 17	1-5,7, 18,19
A	WO 92 02553 A (DELTA BIOTECHNOLOGY LTD) 20 February 1992 cited in the application see page 3, line 10 - page 9, line 1	1-5,7,8, 11,18
X	WO 95 17885 A (RUTGERS , THE STATE UNIVERSITY OF NEW JERSEY) 6 July 1995 see page 7, line 7 - line 10 see page 15, line 1 - page 23, line 36 see page 32, line 1 - page 34, line 6	1,7,8
Α	page 34, Tille U	2-5
Ρ,Χ	WO 97 25422 A (NISSIN FOOD PRODUCTS LTD) 17 July 1997 cited in the application see abstract	1-5,7
Ρ,Χ	QUAX P H A ET AL: "Inhibition of neointima formation in cultured human saphenous vein segments by an adenovirus expressing an urokinase receptor binding plasmin inhibitor" CIRCULATION, vol. 96, no. 8-Suppl., 21 October 1997, page 1669 XP002084540 us see abstract nr.: 3741	1-5, 13-15, 18,19
X	EP 0 439 954 A (SERAGEN INC) 7 August 1991 see page 1 - page 4	1,6
<b>X</b> .	WO 97 00949 A (MASSACHUSETTS INSTITUTE OF TECHNOLOGY) 9 January 1997 see page 6, line 27 - page 7, line 6 see page 12, line 26 - page 13, line 17	1,6
X	US 5 504 001 A (FOSTER DONALD C) 2 April 1996 see column 3, line 5 - line 55	1,6
A	WO 88 09344 A (CREATIVE BIOMOLECULES INC)  1 December 1988 see abstract	1,6

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Int Ponal Application No
PCT/NL 98/00259

Category °	Citation of decument, with indication where appropriate of the relevant	<del></del>	I Deleverate et al.
egory *	Citation of document, with indication, where appropriate, of the relevant passages		Relevant to claim No.
	WO 95 13091 A (INTERNATIONAL TECHNOLOGY MANAGEMENT ASS ) 18 May 1995 see abstract		1,6
\	EP 0 404 750 A (WASHINGTON UNIVERSITY) 27 December 1990 see abstract		8,12
1	WO 95 21601 A (PROTEIN ENGINEERING CORP.) 17 August 1995 see page 4, line 15 - page 5, line 24		8,12
4	EP 0 623 676 A (AMGEN INC ) 9 November 1994 see page 1 - page 4		1,8,12
	·		
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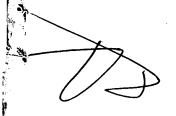
Internal Application No PCT/NL 98/00259

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	atent document d in search report		Publication date		Patent family member(s)		Publication date
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F// 0 4 /0 4 0	V7U33U <b>4</b>		0, 00-1331		05/06/	<u></u>	02-03-1995

Information on patent family members

Into Prince Application No
PCT/NL 98/00259

cited in	search report		date		member(s) 	date
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## **PCT**

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WIPO

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

PCT 069	or agent's file reference		e Notification of Transmittal of International eliminary Examination Report (Form PCT/IPEA/416)
	at application No.	International filing date (day/month/year	Priority date (day/month/year)
PCT/NL9	, ,	11/05/1998	12/05/1997
Internationa C12N9/7		or national classification and IPC	
Applicant			
NEDERL	ANDSE ORGANISATIE	VOOR TOEGEPASTet al.	**************************************
		camination report has been prepared by tant according to Article 36.	his International Preliminary Examining Authority
2. This f	REPORT consists of a total	al of 5 sheets, including this cover sheet.	
b (:	een amended and are the	basis for this report and/or sheets contain 607 of the Administrative Instructions (	scription, claims and/or drawings which have ining rectifications made before this Authority under the PCT).
3. This r	eport contains indications  Basis of the report	relating to the following items:	
·	☐ Priority		•
111	☐ Non-establishment	of opinion with regard to novelty, invention	ve step and industrial applicability
IV	Lack of unity of inv	ention	
<b>V</b>		nt under Article 35(2) with regard to nove nations suporting such statement	lty, inventive step or industrial applicability;
VI	☐ Certain documents	cited	
VII	☐ Certain defects in t	he international application	
VIII	⊠ Certain observation	ns on the international application	
Date of sub	omission of the demand	Date of comp	eletion of this report
10/12/19	9 <b>8</b>		1 1 08 99
	mailing address of the interna examining authority: European Patent Office		July Marian Contraction of the C
<i></i>	D-80298 Munich Tel. (+49-89) 2399-0 Tx: 5	SCHEFFZ 23656 epmu d	YK, I
	Fax: (+49-89) 2399-4465	Tolonkona N	- (, 40,00) 2300

### INTERNATIONAL PRELIMINARY **EXAMINATION REPORT**

International application No. PCT/NL98/00259

I. Bas	sis	of	the	re	po	rt
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This report has been drawn on the basis of (substitute sheets which have been furnished to the receiving Office in

١.	response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.):  Description, pages:								
	1-23	3	as originally	filed					
	Cla	Claims, No.:							
	1-17		as originally filed						
	18-21		as received on		25/06/1999	with letter of	25/06/1999		
2.	The	The amendments have resulted in the cancellation of:							
		the description,	pages:					e.	
		the claims,	Nos.:						
		the drawings,	sheets:					٠	
3.		☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):							
4.	Additional observations, if necessary:								
	-					•			
V.		Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement							
1.	Statement								
	Nov	velty (N)	Yes: No:	Claims Claims	3,4,5,9-12,15,17-19 1,2,6-8,13,14,16,20,2	21			
	Inve	entive step (IS)	Yes: No:	Claims Claims	1-21				
	Ind	ustrial applicability	(IA) Yes: No:	Claims Claims	1-19 20,21: see section VI	11/2).			

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/NL98/00259

2. Citations and explanations

see separate sheet

### VI. Certain documents cited

1. Certain published documents (Rule 70.10)

2. Non-written disclosures (Rule 70.9)

see separate sheet

and / or

### VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

## INTERNATIONAL PRELIMINARY

International application No. PCT/NL98/00259

**EXAMINATION REPORT - SEPARATE SHEET** 

SECTION V-----

Nucleic acid molecules according to claims 1, 13, 14 and 16 are already taught in WO 96/34009 (1) (see e.g. claims 2 and 28, page 16, line 21 and page 17, last paragraph). Moreover, the method claimed in claim 20 also is anticipated by the teaching of (1) (see e.g. claim 28).

Thus, claims 1, 13, 14, 16 and 20 do not meet the requirements of Art. 33(2)(3) PCT.

The same applies to the subject-matter of claims 2, 6-8 and 21 which is anticipated by the disclosure of WO 95/17885 (2) (see e.g. page 7, lines 1-10, page 27, first paragraph, page 30, second paragraph, page 33, third paragraph and claim 34). Moreover, for the sake of completeness it is noted that (2) is also detrimental to novelty of claims 1 and 20.

Claims 3, 4, 5, 9-12, 15, 17-19 appear to be novel since the embodiments thereof are not taught in the available prior art.

However, these claims cannot be considered to be inventive: the provision of nucleic acid constructs comprising sequences encoding a hybrid protein comprising a cell surface receptor binding domain and a domain with protease inhibitor activity to inhibit migration of tumor cells is already taught WO 92/02553 (3). Presently claimed constructs essentially differ from the construct described in (3) in that the vector encoding the hybrid protein is suitable to transfect mammalian cells whereas according to the teaching of (3) the hybrid protein is recombinantly produced in yeast. However, this difference merely can be considered as an obvious alternative to a person skilled in the art, in particular taking into account that the use of animal cells for said purpose is expressly suggested in (3) (see page 10, first paragraph) and, in addition, considering that the expression of hybrid proteins comparable to those defined in present claims, i.e. which comprise a binding domain and an effector domain in mammalian cells was well-known at the filing date of present application (see e.g. wo 96/23814 (4), example 2).

Therefore, the subject-matter of present claims do not meet the requirements of

# INTERNATIONAL PRELIMINARY

International application No. PCT/NL98/00259

**EXAMINATION REPORT - SEPARATE SHEET** 

Art. 33(3) PCT.

SECTION VI-----

Quax P. et al., Circulation, vol. 96, no. 8-Suppl., 21.10.97. page 1669

WO 97/25422 priority date 08.01.96, filing date 06.01.97, publication date 17.07.97

### SECTION VIII-----

- The expression "pMAD5" used in claim 15 appears to be only an internal 1). designation and thus renders the scope of said claim unclear (Art. 6 PCT).
- 2). For the assessment of the present claims 20 and 21 on the question whether they are industrially applicable, no unified criteria exist in the PCT. The patentability can also be dependent upon the formulation of the claims. The EPO, for example, does not recognize as industrially applicable the subject-matter of claims to the use of a compound in medical treatment, but may allow, however, claims to a known compound for first use in medical treatment and the use of such a compound for the manufacture of a medicament for a new medical treatment.



Page
Oate 25-06-99
Your ref PCT/NL98/00259
Our ref Ln/P22617PC00/PCT0694

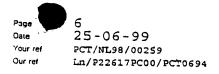
sub HA2 21. A process for producing a hybrid polypeptide or protein which comprises a domain with a binding function and a domain with an effector function, comprising transfecting or transducing mammalian cells with a recombinant nucleic acid molecule as claimed in any one of Claims 1 to 19 to obtain expression of the hybrid polypeptide or protein encoded by said nucleic acid molecule, and optionally recovering the hybrid polypeptide or protein produced.

crosert AA3

add

AA4





#### CLAIMS

- 18. A recombinant nucleic acid molecule comprising a vector useful for transfection or transduction of mammalian, e.g. human, cells, wherein said vector contains a nucleic acid insertion encoding an expressible hybrid polypeptide or protein which comprises a domain with a binding function and a domain with an effector function, wherein the domain with a binding function is a cell surface receptor binding domain.
- A recombinant nucleic acid molecule comprising a vector useful for transfection or transduction of mammalian, e.g. human, cells, wherein said vector contains a nucleic acid insertion encoding an expressible hybrid polypeptide or protein which comprises a receptor binding domain selected from the group consisting of urokinase receptor binding domain of urokinase, receptor binding domain of epidermal growth factor, receptor associated protein that binds to LDL Receptor related protein  $(\alpha_2$ -macroglobulin receptor) and VLDL Receptor, and a domain with protease inhibitor activity which comprises a protease inhibitor or active part thereof, said protease inhibitor being selected from the group consisting of (bovine) pancreatic trypsin inhibitor, (bovine) splenic trypsin inhibitor, urinary trypsin inhibitor, tissue inhibitor of matrix metalloproteinase 1, tissue inhibitor of matrix metalloproteinase 2, tissue inhibitor of matrix metalloproteinase 3, and elastase inhibitor.
- 20. A process for preventing local proteolytic activity, extracellular matrix degradation, cell migration, cell invasion, or tissue remodeling, comprising transfecting or transducing the cells involved or cells in their environment with a recombinant nucleic acid molecule as claimed in any one of the preceding Claims to obtain local expression of the hybrid polypeptide or protein encoded by said nucleic acid molecule.

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A process for producing a hybrid polypeptide or protein which comprises a domain with a binding function and a domain with an effector function, comprising transfecting or transducing mammalian cells with a recombinant nucleic acid molecule as claimed in any one of Claims 1 to 19 to obtain expression of the hybrid polypeptide or protein encoded by said nucleic acid molecule, and optionally recovering the hybrid polypeptide or protein produced.



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### CLAIMS

- 18. A recombinant nucleic acid molecule comprising a vector useful for transfection or transduction of mammalian, e.g. human, cells, wherein said vector contains a nucleic acid insertion encoding an expressible hybrid polypeptide or protein which comprises a domain with a binding function and a domain with an effector function, wherein the domain with a binding function is a cell surface receptor binding domain.
- 19. A recombinant nucleic acid molecule comprising a vector useful for transfection or transduction of mammalian, e.g. human, cells, wherein said vector contains a nucleic acid insertion encoding an expressible hybrid polypeptide or protein which comprises a receptor binding domain selected from the group consisting of urokinase receptor binding domain of urokinase, receptor binding domain of epidermal growth factor, receptor associated protein that binds to LDL Receptor related protein  $(\alpha_2$ -macroglobulin receptor) and VLDL Receptor, and a domain with protease inhibitor activity which comprises a protease inhibitor or active part thereof, said protease inhibitor being selected from the group consisting of (bovine) pancreatic trypsin inhibitor, (bovine) splenic trypsin inhibitor, urinary trypsin inhibitor, tissue inhibitor of matrix metalloproteinase 1, tissue inhibitor of matrix metalloproteinase 2, tissue inhibitor of matrix metalloproteinase 3, and elastase inhibitor.
- 20. A process for preventing local proteolytic activity, extracellular matrix degradation, cell migration, cell invasion, or tissue remodeling, comprising transfecting or transducing the cells involved or cells in their environment with a recombinant nucleic acid molecule as claimed in any one of the preceding Claims to obtain local expression of the hybrid polypeptide or protein encoded by said nucleic acid molecule.